The Case for Constant Monitoring

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1. Introduction

This document will discuss the merits of installing EPA Constant Monitoring Systems over the use of once or twice daily Wrist Strap Testers and infrequent Resistance to Ground (Rg) testing of ESD benches and work surfaces.

2. Traditional Personnel & EPA Testing

Personnel Grounding is our first line of defence in good ESD Protection. The most effective method is via a Wrist Strap Assembly (WSA) comprising of a wrist band, elasticated cloth or metal, and coiled cord which connects to the wrist band at one end and a suitable approved grounding point at the other.

A fully functioning WSA will drain all generated charge to ground immediately.

However, the assembly must be tested to ensure it is working correctly. The question is: How Often?

In many cases personnel are instructed to test their Wrist Strap on entering the EPA at the beginning of the working day. Often, this is the only test performed during that working period so should a failure occur before the next test then we have no idea as to when the operator lost all connection to ground and simply passed all generated static charge through the product!

Similarly, if there are many EPA's to audit it is quite common to find that benches and Rg (Resistance to Ground) are inspected and tested every 3 months. Once again, where failures occur, it is quite possible that all ground has been lost for days, weeks or even months. We can clearly see that when using these methods both Personnel and EPA testing is merely a snap shot of that moment in time!

In today's high risk ESD environments we need to be working in Real Time and this is where Constant Monitoring can supply the solution.

3. Constant Monitoring

Constant Monitoring has been available in its earliest form for over 25 years but these products were often very unreliable.

There are two basic styles or methods of monitoring:

- **Capacitance**
  These are based on an industry standard wrist strap and cord, and provide simple monitoring for 1 operator and 1 EPA surface.

  They are relatively inexpensive but are often difficult to adjust accurately as individual body capacitance can vary resulting in the units alarming intermittently. Teknis do not recommend this type of monitoring.

- **Resistance**
  This style of Continuous Monitor is known to be more accurate and will often monitor two operators and two EPA surfaces to ground. All will offer a visual and/or audio visual alert.

  The wrist strap assemblies are of the twin cord or dual style and work via the resistive loop method. As always there are many styles on the market but after much research Teknis found the Megalin product range to be the most accurate and by working in partnership with Megalin we believe we offer the most comprehensive and sophisticated monitors available today.

4. Megalin Constant Monitoring

The Megalin range allows full Real Time Constant Monitoring with the range starting with the entry level CM1600GZ and building to the sophisticated CM1800GZ which provides a fully networked integrated system with comprehensive email warnings and reports.

The CM1800GZ is a proactive ESD grounding monitor for 2 operators & 2 workstations with the highest flexibility and performance specifications in the industry. This digital device provides complete protection for two operators by independently monitoring both **resistance** and **voltage** using a dual wire wrist strap assembly. The monitor meets Ultra Low Voltage (ULV) requirements for induced operator and work-station voltage.

It also monitors the EPA Surface ESD ground (Rg) and simultaneously measures the resistance of an individual tool chassis ground (e.g. soldering iron).

The unit is pre-programmed with BS EN 61340-5-1 default settings and can be used 'straight from the box' but the advantage, with the additional purchase of Megalin SEE software and the use of a separate PC, each individual monitor and therefore every individual user can be custom set to your own specific requirements.

5. Megalin SEE Software

GZ-1800-SEE software is very easy to use with simple and clear on-screen menus. The monitor functions are grouped as outlined below.

Through efficient control of communication and the high performance monitor measurement, the effectiveness of the hardware management is greatly increased:

- Enable/Disable the measurement of operator resistance and voltage

- Adjust and set the limits of operator resistance and voltage

- Enable/Disable ESD mat or Surface resistance

- Adjust and set the limit of ESD mat or Surface resistance

- Enable/Disable Tool/Equipment resistance (e.g. Soldering Iron)

- Adjust and set the limit of Tool/Equipment resistance (e.g. Soldering Iron)

- View the measured data in real-time

- Enable/Disable Operator Presence Check (OPC) *see below*

- Read the monitors individual ID and Serial Number

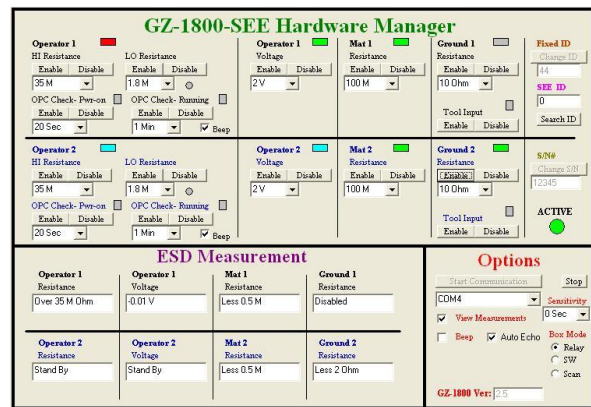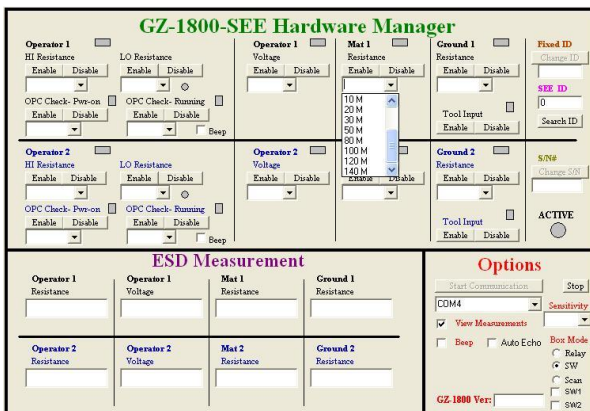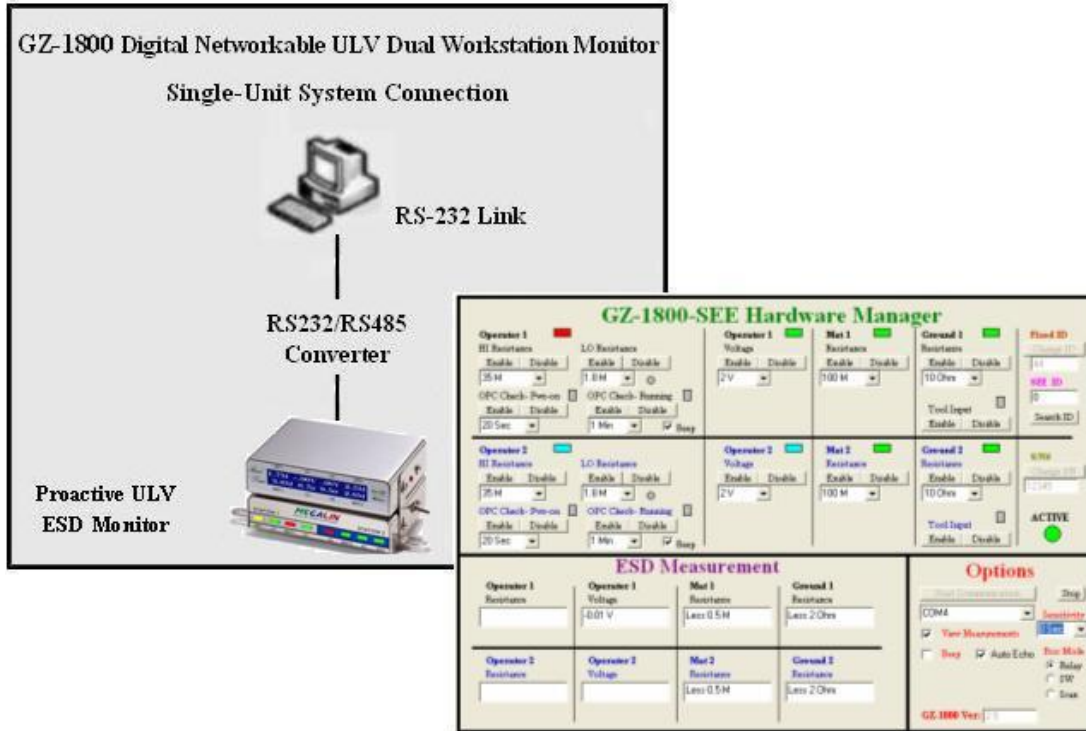# 6. Megalin CMBOSS1800GZ Software

One of the key roles of the Site or Local ESD coordinator is to instil an ESD culture where following correct ESD procedure becomes a habit. However, good habits often become bad habits!

With standard constant monitoring there is always the risk that the operator will sit down and start work before either connecting their wrist strap or putting their wrist strap on and failing to connect to the monitor.

With the Megalin CM1800GZ you have the option of OPC (Operator Presence Check) where, with an upgraded wrist strap assembly connector the monitor senses the presence of a person or object too close to the EPA. After a few seconds the

alarm will sound reminding the operator to connect to the monitor where their body resistance can be checked and monitored. This eliminates the Bad Habit risk and ensures the operator has no choice but to use the system correctly.

All alarms can be notified via the comprehensive Megalin reporting system so even if the operator ignores the alarm the event is monitored by the software.

7. Megalin GZ1800H Router

The advantage with a CM1800GZ **networkable** constant monitoring system is that you can add monitors to areas as the need arises and all can communicate via a unique Megalin Router in partnership with the high level CMBOSS1800GZ software

The GZ-1800H is a dedicated network router to be used with CM1800GZ proactive ESD monitors. It has 4 connection ports each of which can connect a maximum of 32 CM1800GZ monitors enabling 128 monitors connected via a single Router. The Router contains an RJ45 port that can be connected to a LAN via TCP/IP.

A special high speed processing technique is used in the Router to provide high performance data processing and communication amongst networked monitors and the host PC-based network management software, CMBOSS1800GZ, which communicates with all monitors giving full control over every individual setting. This is the most advanced software package on the market today and has unrivalled monitoring and reporting settings giving a complete Real Time picture of all activity and alarms.

x 32sets   x 32sets   x 32sets

RJ11 Connection
for 32 Units Max.

A B C D

GZ-1800-H Router

One GZ-1800-H May
Connect to 128 GZ-1800

The Megalin Constant Monitoring range is available in the UK exclusively from Teknis Ltd and we will be pleased to discuss and demonstrate the entire system on site. Please contact us for details or any additional information required.

8. About Teknis

Teknis Limited has been a key supplier to the electronics industry since 1964, specialising in the design, manufacture, and supply of electrostatic discharge (ESD) protection products, together with associated production essentials and consumables. Teknis is a founding member of the British Electrostatic Control Association (BECA), and has worked closely with several large OEM's in the provision of both ESD awareness training and consultancy.

Teknis offers a wide range of Static Control Products, also known as Antistatic Products. These products are used to reduce or eliminate static electricity that is often generated when handling and processing ESDS (Electro Static Discharge Sensitive Devices) within the electronics manufacturing industry.

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